

To: Jack Melcher

From: Gerald Valentine

RE: Possible Illicit Discharge of Sewage into the Under Air Rights Garage, New Haven, CT

August 12, 2013

Hello Jack,

Thanks again for speaking with me last week. As per our phone conversation, I have prepared a document that provides background on the flooding event that occurred in the Under Air Rights Garage (UARG) on August 10, 2012. The UARG operates underneath the Air Rights Garage (ARG) and is part of the Route 34 corridor in downtown New Haven (Fig. 1). As part of the planning for the 'Downtown Crossing' project that is currently underway in New Haven, several drainage analyses within the Route 34 corridor have been performed. Because of its direct relevance to flooding in the UARG, I specifically adduce a report commissioned by the City of New Haven (CNH) to address frequent flooding at Union Ave, Route 34 and Temple Street entitled '*Drainage Study for Route 34 and Union Ave.*' The report was prepared by Cardinal Engineering Associates and was submitted to the CNH on July 11, 2012.

As I will try to make clear, findings from the Cardinal report directly support the contention that on August 10, 2012, an 'uncontrolled' CSO entered into the UARG / hospital loading dock area in downtown New Haven. Furthermore, I believe that given the current configuration of the drainage system, the UARG and loading dock area remain at risk from future CSOs.



Fig. 1. Aerial view of the ARG and it's relationship to YNHH and Smilow Cancer Hospital

The study area of the Cardinal report includes a drainage basin of 580 acres in downtown New Haven and includes Yale New Haven Hospital (YNHH), Smilow Cancer Hospital (SCH), the Temple St. Garage, the Union Avenue Garage, and the Air Rights Garage (ARG). As seen in Fig. 2, the ARG is just upstream of the area designated ROUTE 34 FLOODING. The flooding that occurs in the areas designated as TEMPLE ST FLOODING and UNION AVE FLOODING include two parking garages (Temple St & Union Ave) that are operated by the New Haven Parking Authority (NHPA). What is conspicuously absent from the Cardinal report is an account of the recurrent flooding that also occurs in an additional parking space operated by the NHPA, the Under Air Rights Garage (UARG, Fig. 3).

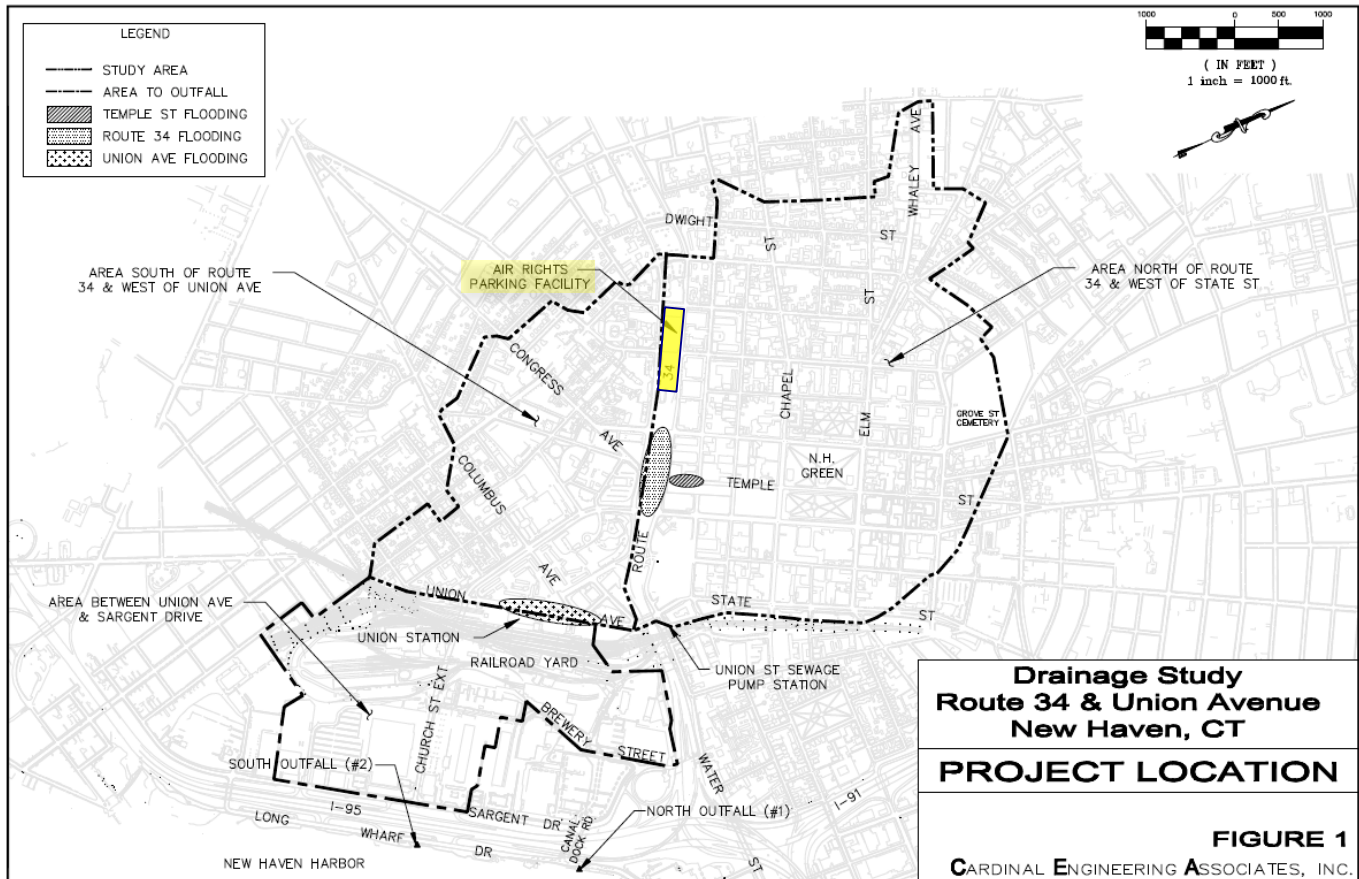


Fig. 2. Please note that this map is rotated approximately 90 degrees clockwise. The actual long axis of the ARG is oriented more east-westerly.

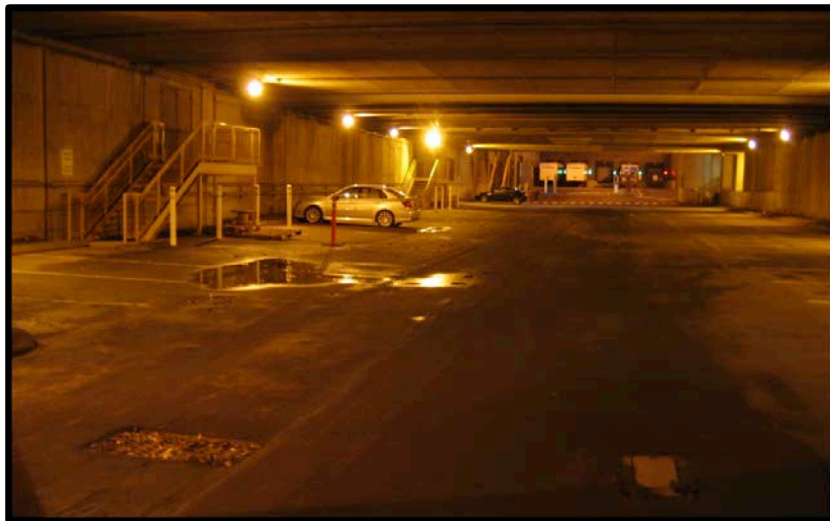


Fig. 3. Interior of the UARG, August 11, 2013. Looking westward toward the YNHH loading dock. The image was taken about 28 hours after the flooding event on August 10th.



Fig. 4. Air Rights Garage and the UARG Entrance / Exit at the eastern boundary of the ARG. Photo taken in August, 2012.

The UARG presently operates on land that was originally intended to be a portion of State Hwy. 34. Because Route 34 was supposed to pass underneath the ‘Air Rights’ Garage, the UARG is situated in a deep cut of land that drops well below the adjacent grade as one moves westward from the eastern Entrance / Exit (Fig. 4). In 2003, after plans to complete the Route 34 expressway were abandoned, the land was transferred from the State of Connecticut to the CNH. In 2008, part of the land beneath the ARG was repurposed as a loading dock serving YNH/SCH, and in 2010, the NHPA entered into a license agreement with the Connecticut Mental Health Center (CMHC) for use of 202 parking spaces on the UARG ‘surface parking lot’ located within the ARG.

On October 1, 2010, about 5 months after CMHC employees began to park in the UARG, it flooded (along with the ROUTE 34 FLOODING area depicted in Fig. 2) during a **1-year storm** event that occurred at high tide. To the best of my knowledge, only one car was damaged because the flooding occurred just before the start of the workday, and approaching cars were redirected. No images from this event are currently available, but there are many eye-witnesses of the event who still work at CMHC.

Then, on August 10, 2012, over 30 cars, most of which were owned by employees of CMHC, were damaged when a combination of untreated sewage and stormwater entered into the UARG (see Fig. 5a & 5b). All insurance claims were denied by the NHPA’s insurance carrier, Travelers, because they found that the flood was not the result of any pre-existing defect within the UARG, and that the flooding was, more or less, an ‘act of God’ that could not have been avoided. The rainfall that afternoon was just short of meeting criteria for a **100-year storm**. In addition, Travelers based their denial of claims, in part, upon the statement provided by the NHPA that the UARG had not previously flooded. This is verifiably false (see above).



Fig. 5a. Interior of UARG with floodwater, looking eastward toward exit.



Fig 5b. Turbid floodwater in the UARG.

The UARG again flooded on September 28, 2012 during an intermediate intensity, afternoon rainstorm (Fig. 6).



Fig. 6a. A static image taken from a video showing backflow up through a catch basin in the UARG on September 28, 2012.



Fig 6b. Note the transparent nature of the flood water.

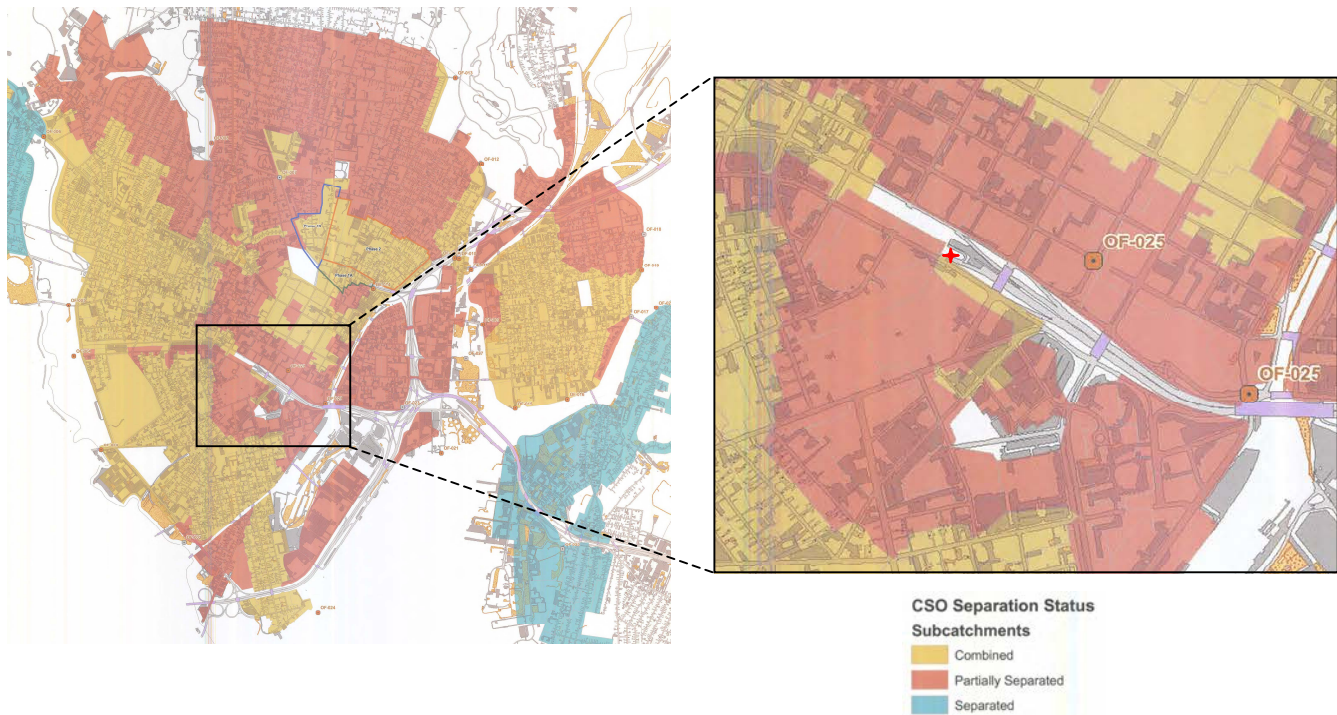


It is likely that the UARG has also flooded on other occasions, but are not well documented because the flooding occurred outside of business hours when the UARG was not being utilized. Furthermore, given the apparent audacity of the NHPA to misrepresent the truth about previous flooding to State of Connecticut Insurance Department, the NHPA may have disincentives to report flooding events to other departments and agencies. For example, the Greater New Haven Water Pollution Control Authority (GNHWPCA) claims that they were never informed about the flooding event in the UARG on August 10, 2012. Verification that the NHPA / Park New Haven follows its own protocol for notifying the New Haven Fire Marshall about flood events in, and around, the UARG is presently underway.

Compounding the deception on part of the NHPA, is the possibility that the untreated human sewage that entered into the UARG / YNHH loading dock on August 10, 2012 originated, in part, from YNHH and Smilow Cancer Hospital (SCH) itself. As seen in Fig. 7, the area adjacent to the UARG is served by an old combined sewer (green lines) that serves as the sanitary sewer for the area (including YNHH and SCH), and by a newer separate storm sewer system (purple lines). Note the red circle in the lower left corner designating CSO031.

Fig. 7. Storm and Sanitary Sewer Map, ARG and YNHH area incl. CSO031; merged and annotated printouts; originals provided by GNHWPCA in July 2013;

Source: http://giswebviewer.gnhwpc.com/gnhwpc_CMOM/index.html (restricted access)



★ Per GNHWPCA-NPDES status – CSO-031 is “Active – These Cross Connections are believed to be Closed. Performing inspections & obtaining documentation.”

Fig. 8. Note that a red cross was added to the map to depict the location of CSO-031 which is not otherwise identified.

Image Source: http://www.gnhwPCA.com/Userfiles/EJPPP_Final_Report/121017_EJPPP_Final_Report_Web_Vol_2.pdf

As depicted in Fig. 8 above, the region around the UARG is characterized by the GNHWPCA as having partial CSO separation status. But according to the Cardinal report, the majority of roof leaders from buildings are still connected to the combined system, and not the upgraded storm sewer.

Please note that the Connecticut Department of Energy & Environmental Protection (DEEP) identifies a CSO outfall as being present in the vicinity of the southeast corner of the ARG (Fig. 9).

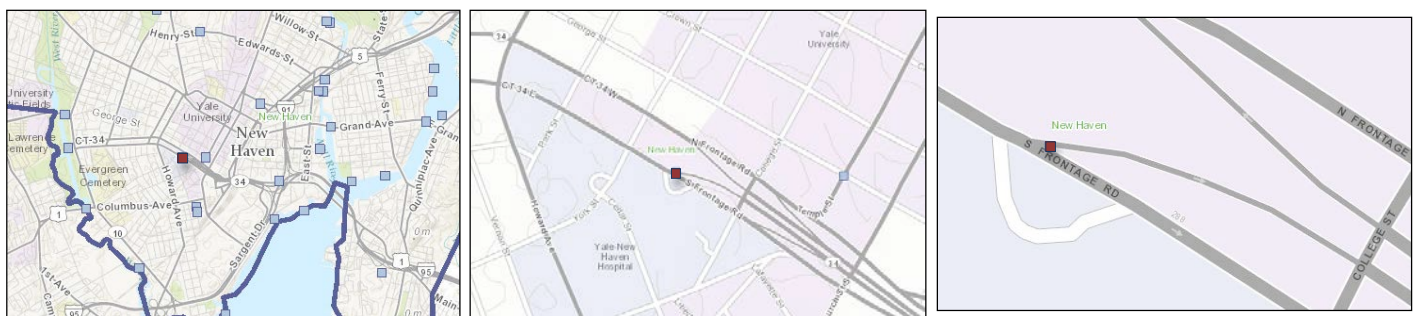


Fig. 9. The red square designates the location of CSO-031. Please note that this square was changed to red in this report to distinguish it from the other outfalls on the DEEP website.

During a meeting with an engineer at the GNHWPCA in July 2013, I was informed that CSO-031 has just recently been renamed as Regulator 031 because it is not actually an CSO outfall. Note that although the cross-connection at CSO-031 persists on the map in Fig. 11, it was listed as ‘Closed’ by the GNHWPCA in a table providing updated CSO information to DEEP (Fig. 10).

GREATER NEW HAVEN WATER POLLUTION CONTROL AUTHORITY
CSO LONG TERM CONTROL PLAN ANNUAL STATUS REPORT
June 30, 2013

| 2007 MODEL UPDATE | | | | 2013 STATUS | | | |
|---|---------------------------|---|-------------------------------------|--------------------------------|------------------------------------|--|---------------------------|
| CSO LTCP CAPITAL IMPROVEMENTS 1997-2007 | 2007 CSO REGULATOR STATUS | 2007 EXISTING CONDITIONS MODEL ² 2-YEAR DESIGN STORM CSO VOLUME (MG) | REDUCTION 1997-2007 CSO VOLUME (MG) | NPDES PERMIT CSO REFERENCE NO. | PROPOSED NPDES PERMIT CSO REF. NO. | CSO LTCP CAPITAL IMPROVEMENTS & NOTES 2007-2013 | 2013 CSO REGULATOR STATUS |
| | Active | | | CSO 001 | CSO 001 | | Active |
| Truman Tank | Closed | 0.0 | 1.1 | CSO 002 | | | Closed |
| Truman Tank | Active | 3.1 | 1.2 | CSO 003 | CSO 003 | | Active |
| | Active | 6.1 | 0.0 | CSO 004 | CSO 004 | | Active |
| | Active | 4.8 | 0.2 | CSO 005 | CSO 005 | | Active |
| | Active | Discharges to CSO 005 outfall | | CSO 005 (A) | | | Closed |
| | Active | Discharges to CSO 005 outfall | | CSO 005 (B) | | | Closed |
| | Active | 5.1 | -0.5 | CSO 006 | CSO 006 | | Active |
| | Closed | 0.0 | 0.0 | CSO 007 | | | Closed |
| | Active | 0.2 | 0.0 | CSO 008 | | Scheduled for Closure | Close (2013) |
| | Active | 2.5 | 0.3 | CSO 009 | CSO 009 | I&I Project in Progress | Active |
| Sewer Separation | Active | 0.3 | 0.4 | CSO 010 | | Scheduled for Closure Sewer Separation in Progress | Close (2013) |
| | Active | 0.6 | 0.1 | CSO 010 (A) | R 010 (A) | Sewer Separation in Progress Discharges to CSO 011 | Active |
| Sewer Separation | Active | 7.4 | 2.5 | CSO 011 | CSO 011 | Sewer Separation in Progress | Active |
| Sewer Separation | Active | 1.5 | 1.2 | CSO 012 | CSO 012 | | Active |
| Sewer Separation | Active | 0.1 | 0.7 | CSO 013 | CSO 013 | | Active |
| | Active | Discharges to CSO 013 outfall | | CSO 013 (A) | | | Closed |
| | Active | 1.0 | -0.1 | CSO 014 | R 014 | Scheduled for Closure Sewer Separation in Progress Discharges to CSO 011 | Close (2013) |
| | Active | 1.7 | 2.9 | CSO 015 | CSO 015 | I&I Project in Progress; Tide Gate 2012 | Active |
| | Active | 3.8 | -2.1 | CSO 016 | CSO 016 | Tide Gate 2010 | Active |
| | Closed | 0.0 | 0.0 | CSO 017 | | | Closed |
| Sewer Separation | Closed | 0.0 | 1.7 | CSO 018 | | | Closed |
| Sewer Separation | Active | 1.3 | 0.2 | CSO 019 | CSO 019 | | Active |
| | Active | 0.6 | -0.4 | CSO 020 | CSO 020 | | Active |
| Sewer Separation | Active | 5.0 | 0.4 | CSO 021 | CSO 021 | Sewer Separation in Progress; Tide Gate 2013 | Active |
| Sewer Separation | Closed | 0.0 | 0.0 | CSO 021 (A) | | | Closed |
| Sewer Separation | Closed | 0.0 | | CSO 022 | | | Closed |
| | Closed | 0.0 | 0.0 | CSO 023 | | | Closed |
| Truman Tank | Active | 0.6 | 2.9 | CSO 024 | CSO 024 | Tide Gate 2010 | Active |
| Sewer Separation | Active | 2.5 | 1.7 | CSO 025 | CSO 025 | | Active |
| Sewer Separation | Active | Discharges to CSO 025 outfall | | CSO 025 (A) | | | Closed |
| Sewer Separation | Closed | 0.0 | 0.0 | CSO 025 (B) | | | Closed |
| Sewer Separation | Active | 0.0 | 0.1 | CSO 026 | R 026 | Discharges to CSO 011 | Active |
| | Active | 0.5 | 0.2 | CSO 027 | | Closed CSO | Closed |
| | Active | 0.0 | 0.0 | CSO 028 | R 028 | Discharge to CSO 012 | Active |
| Pump Station Upgrade | Closed | 0.0 | 0.3 | CSO 029 | | | Closed |
| Pump Station Upgrade | Closed | 0.0 | 0.0 | CSO 030 | | | Closed |
| Sewer Separation | Active | 0.9 | No model data | CSO 031 | | Closed CSO | Closed |
| | Active | 0.0 | No model data | CSO 032 | R 032 | Scheduled for Closure | Close (2013) |
| | Active | 0.0 | No model data | CSO 033 | | Closed CSO | Closed |
| | Active | 0.9 | 0.1 | CSO 034 | R 034 | Discharge to CSO 025 | Active |
| | Active | 0.1 | 0.0 | CSO 035 | | Closed CSO | Closed |
| | Active | 0.0 | No model data | (not assigned) | CSO GREENE | | Active |
| | Closed | 0.0 | 0.0 | N/A | | | Closed |
| | Closed | 0.0 | 0.0 | N/A | | | Closed |
| | | 50.6 | 14.2 | | | | |
| | | 22% | | | | | |
| | 33 | | | | | | 21 |
| | 12 | | | | | | 24 |
| | 28 | | | | | | 17 |
| | 10 | | | | | | 21 |

| DEFINITIONS | |
|-------------|--|
| ACTIVE | ACTIVE CSO DURING A 2-YEAR STORM FREQUENCY, SEE NOTE NO. 3 |
| INACTIVE | INACTIVE CSO DURING STORM FREQUENCIES BELOW 2-YEARS |
| CLOSED | CLOSED - BULKHEADED CSO, CLOSED FOR ALL STORMS |

Fig. 10. Note that CSO 031 was listed as Active in 2007, and as Closed in 2013.

However, given the large volume of mixed sewage and stormwater that entered into the UARG on August 10, 2012, I sought verification that the cross connection between the combined sanitary sewer system, and the separate stormwater system, was indeed closed (Fig. 11).

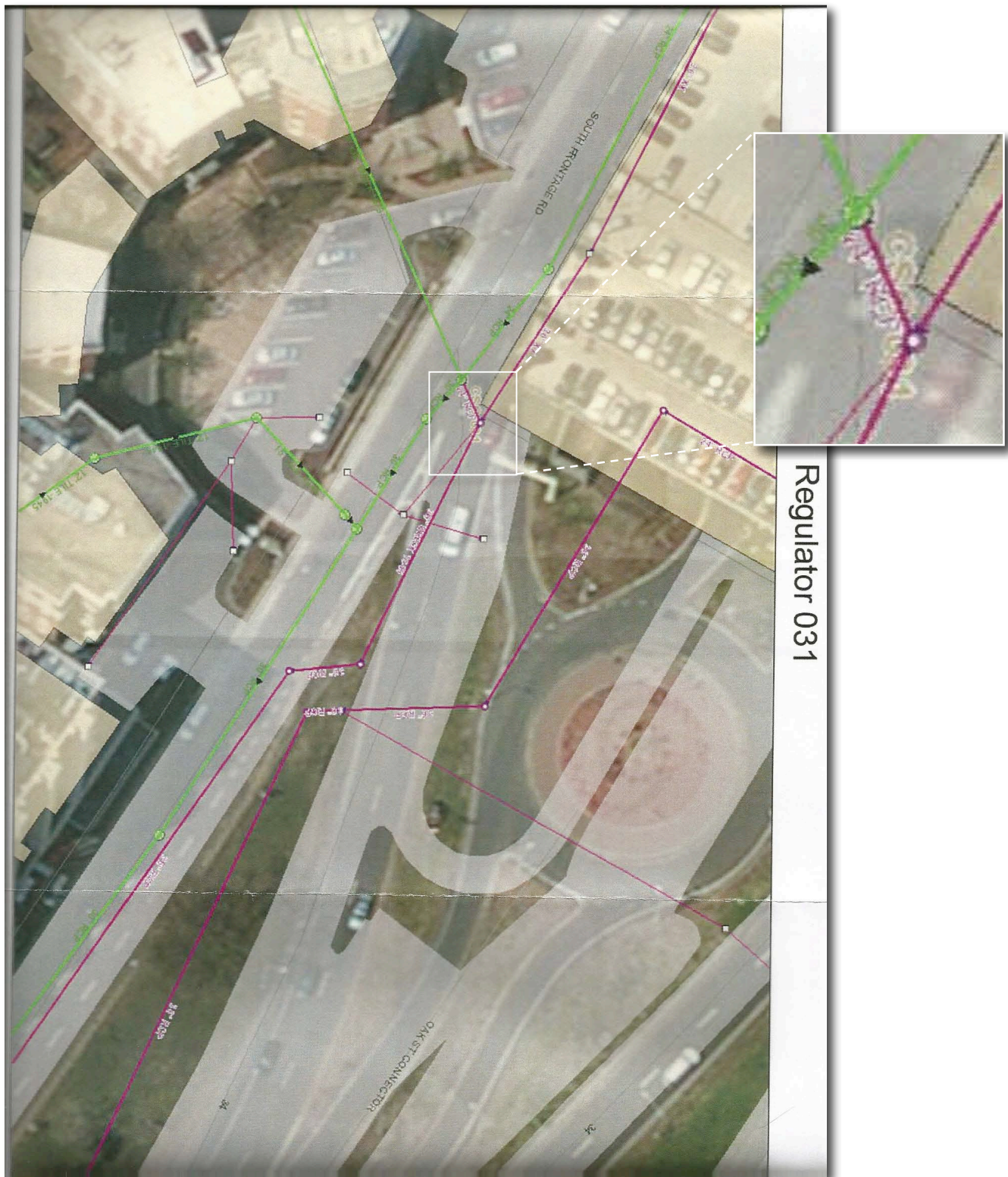


Fig. 11. Close-up of CSO 031 and surrounding drainage infrastructure (provided by GNHWPCA in June 2013). Note the direction of flow within the sanitary system.

On August, 2013, the GNHWPCA provided me with images that demonstrated the cross connection at CSO 031 was in fact open, and not closed, as had been reported to DEEP (Fig. 12 & 13).



Fig. 12. CSO 031 - looking northeast toward the junction with the storm sewer system.



Fig. 13. The right sewer channel is looking straight into the separate storm sewer system that runs along the southern boundary of the ARG in Fig. 7 and in Fig. 11. The left sewer channel extends southwest to the other end of the CSO 031 as shown in Fig. 12.

Of direct relevance to the consequences of a patent CSO-031 / Regulator 031 cross connection at this location is a conclusion from the Cardinal Engineering report:

“During storm events the rain water in the combined system exceeds the flow capacity and overflows located at State Street and Temple Street discharge into the storm sewer system. The storm sewer system also has limited capacity and frequent flooding occurs at Union Avenue, Route 34 and Temple Street.”

It is our contention that the overflow located at S. Frontage / ARG (CSO-031 / Regulator 031) behaves in the same manner as described in the Cardinal report when the combined system’s capacity is exceeded. We believe that on August 10, 2012, Regulator 031 performed as it was designed, thereby conveying CSO to the separate storm water system that was also backed-up. With nowhere to go, the surcharged sewer system discharged sewage into the surrounding streets, and into the UARG / YNHH loading dock.

In addition to the GNHWPCA, it is my opinion that the NHPA and YNHH should also share responsibility for the flooding. As shown in Fig. 14 below, the maintenance of the UARG is shared by YNHH and the NHPA. Furthermore, it is not clear whether YNHH is aware that it is operating a loading dock with an access road, and egress, that can be inundated with untreated sewage.

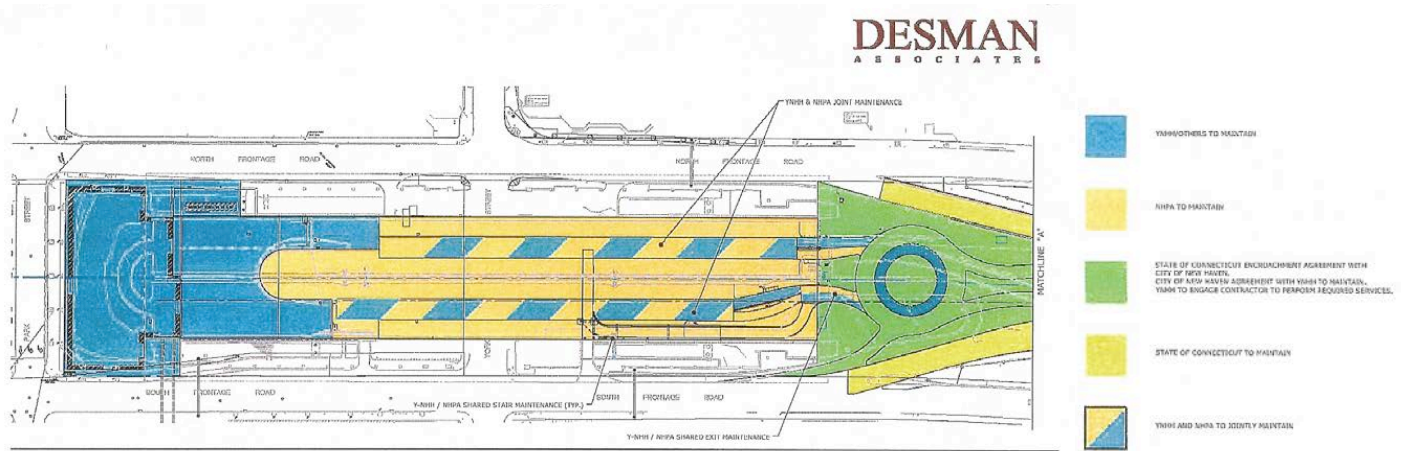


Fig. 14. Map depicting shared maintenance responsibilities in the UARG, and for the loading dock and roundabout just east of the ARG.

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Fig. 15. Aerial view of the ARG.